Claims

1. A method for synthesising a templated molecule, comprising the steps of:
   a) providing at least one template comprising of one or more codons,
   b) providing a first functional entity attached to a zipping domain, said zipping domain comprises a first part of a molecule pair being capable of reversible interaction with a second part of the molecule pair,
   c) providing one or more building blocks, each comprising an anti-codon, a further functional entity and a linker connecting the anti-codon and the functional entity, wherein the anti-codon complements a codon of a template, and the functional entity is connected to a zipping domain comprising the second part of said molecule pair and is capable of being chemically connected to the first functional entity,
   d) contacting the components of step a), b), and c) with each other under conditions allowing specific hybridisation of the anti-codon(s) to the codon(s) of the template(s) and dimerization of the two parts of the molecule pair,
   e) allowing the functional entity of the building block to form a chemical connection to the first functional entity,
   f) optionally, cleaving one or more linkers, provided that at least one linker remains to connect the functional entities with the template,
   g) obtaining a templated molecule attached to the template which directed the synthesis thereof.
2. The method according to claim 1, wherein steps d) through f) is repeated one or more times.
3. The method according to claim 2, wherein the repetition is conducted using the templated molecule attached to the template which directed the synthesis thereof according to step g) as the first functional entity attached to a zipping domain in the contacting step according to step d).
4. The method according to claim 1 to 3, wherein the first functional entity is covalently connected to the template.
5. The method according to claims 1 to 3, wherein the first functional entity is connected by hybridisation to the template.
6. The method according to claim 1, 2, 3, or 5 wherein the first functional entity is part of a building block.

7. The method according to claim 6, wherein the zipper domain polarity of the building block harbouring the first functional entity is reverse compared to the zipper domain polarity of the building block harbouring the further functional entity.
8. The method according to any of the preceding claims, wherein the zipping domain of the first functional entity is present in the template.
9. The method according to any of the preceding claims, wherein the molecule pair comprises two complementary sequences of nucleic acids or nucleic acid analogs.
10. The method according to claims 1 to 9, wherein the first functional entity is connected to a sequence of nucleic acids complementing a sequence of nucleic acids harboured by the template.
11. The method according to any of the preceding claims, wherein the zipping domain is a part of the linker of the building block.
12. The method according to claims 8 or 11, wherein the zipping domain is proximal to the functional entity.
13. The method according to claims 11 or 12, wherein the zipping domain is spaced from the functional entity with no more than 2 nucleic acids monomers.
14. The method according to claim 13, wherein the zipping domain and the first functional entity is spaced by no more than 2 nucleic acid monomers.
15. The method according to any of the preceding claims, wherein the zipping domain of the further functional entity of the building block and the first functional entity is distanced from the respective functional entities with the same number of nucleic acid monomers.
16. The method according to any of the preceding claims, wherein the zipping domain sequence comprises 3 to 20 nucleic acid monomers.
17. The method according to claim 16, wherein the zipping domain sequence comprises 4 to 16 nucleic acid monomers.
18. The method according to claim 17, wherein the zipping domain sequence comprises 5 to 10 nucleic acid monomers.
19. The method according to any of the preceding claims, wherein the linker between the anti-codon and the zipping domain is a single bond.
20. The method according to any of the preceding claims, wherein the annealing temperature of the codon:anti-codon hybrid is higher than the annealing temperature of the zipping domain hybrid.

21. The method according to claim 20, wherein the difference between the annealing temperatures is 10 °C or above.
22. The method according to claim 20, wherein the difference between the annealing temperatures is 25 °C or above.
23. The method according to any of the preceding claims, wherein the conditions for allowing specific hybridisation of the anti-codon(s) to the codon(s) of the template(s) are distinct from the conditions allowing for optimal dimerisation of the two pairs of the molecule pair.
24. The method according to claim 23, wherein the conditions during specific hybridisation of the anti-codon(s) to the codon(s) include a concentration of codons and/or anti-codons, which is higher than the concentration of codons and/or anti-codons used during dimerisation of the two pairs of the molecule pair.
25. The method according to claim 24, wherein the concentration during hybridisation of codon(s) and anti-codons is at least 10 times higher compared to the concentration used for dimerisation of the two pairs of the zipping domain.
26. The method according to any of the preceding claims, wherein the contacting according to step d) is performed by alternating the temperature below and above the annealing temperature of the zipping domain.
27. The method according to claim 26, wherein the alternating is performed a plurality of times.
28. The method according to claim 26 or 27, wherein the highest temperature is below the annealing temperature of the codon:anti-codon hybrid.
29. A templated molecule obtainable according to any of the claim 1 to 28.